The importance of cost considerations in preterm birth trials

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This is a mini commentary on TAJ Nijman et al., pp. 875–883: https://doi.org/10.1111/1471-0528.15625

As evidence-informed healthcare continues to advance, understanding the complexities of cost-effective interventions becomes increasingly important. Both new innovations and traditional therapies are being considered through a lens of costs and benefits. This can be particularly difficult when it comes to preventive interventions, as the cost savings from prevention of later events can be difficult to calculate. This is true in obstetrics for the condition of preterm birth. Every year, an estimated 15 million babies are born preterm (before 37 completed weeks of gestation), with numbers rising (WHO Fact Sheet, Preterm Birth, Feb 2018). Although worldwide costs have been elusive to calculate, a recent UK study estimated societal costs from a preterm birth to adult life to be £2.946 billion (Mangham-Jeffries et al. *Pediatrics* 2009:123; e312–27).

As investigators determine the most effective therapeutics to delay or prevent preterm birth, it is important to embed cost analyses within those trials. Such an analysis is presented in this issue of *BJOG* (Nijman et al. *BJOG* 2019;126:875–83). The study presents a planned secondary analysis of the APOSTEL III trial comparing nifedipine and atosiban as tocolytics for women with threatened preterm birth. As part of the authors' societal perspective on costs up to 6 weeks postpartum, they included lost productivity of the parents, an important factor. They found that the costs in the nifedipine group were significantly lower, by almost €8,500. As expected, the costs were driven mainly by fewer admissions to the NICU in the nifedipine group. Interestingly, if admitted, the groups had similar length of NICU stays.

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One of the perplexing and difficult to interpret findings of both the original trial and this cost analysis is the higher neonatal death rate seen in the nifedipine group in the trial. Initially, this might be suspected as a reason for the higher costs in the atosiban group, as more of those infants would be alive to incur NICU costs. However, the results showed that the median day of death for infants who died in the nifedipine group was later than for those who died in the atosiban group, bolstering the case that the NICU costs are for some reason higher for the newborns in the atosiban group. This bears further study. Additionally, the calculations did not extend beyond 6 weeks postpartum. Thus, the societal costs of lost productivity of the newborns who died were not taken into account, nor were the lifetime costs of potential long-term disability in the preterm infants who survived.

The authors accounted for multiple factors to highlight the cost of treatment for threatened preterm labour in the trial. Their sensitivity analyses were well planned. It appears that nifedipine may result in lower costs for women with threatened preterm birth. How these calculations translate to other healthcare economies or to low- and middle-income countries (LMIC) is another question that will need to be addressed by the global maternity health community. As many of the countries with the highest preterm birth rates are LMICs (Blencowe et al. *Lancet* 2012:9;379:2162–72), incorporating cost analyses into preterm birth studies in LMICs will inform preterm birth prevention initiatives worldwide. Preterm birth remains one of the most critical and costly societal problems in maternal-child health. Gathering cost data as well as effectiveness data can help advance strategies to reduce preterm birth on a global scale.

Disclosure of interests

Dr. Haas has no relevant financial disclosures. He has authored research articles on preterm birth and tocolysis. A completed disclosure of interests form is available to view online as supporting information.